Name: _____ CS Login: _____ Worksheet #2

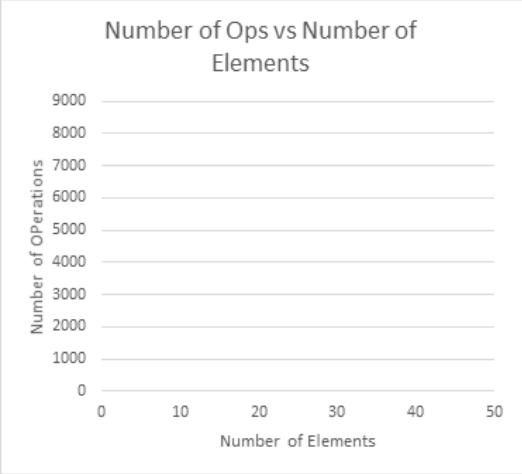
Please turn this in at the end of class (don't worry, we're not grading on correctness!). Make sure to write your login legibly. Sit with a partner or to work on these together though the lecture (or make friends with the people around you!) Check your answers with other neighbors.

Question 1:

How many operations are performed in the argmax function if the list has:

a. 10 elements?
b. 20 elements?
c. 30 elements?
d. 40 elements?
e. 100 elements?
f. 100,000 elements?

Plot the first four of these results on the chart to the right. Ponder the bigger one.

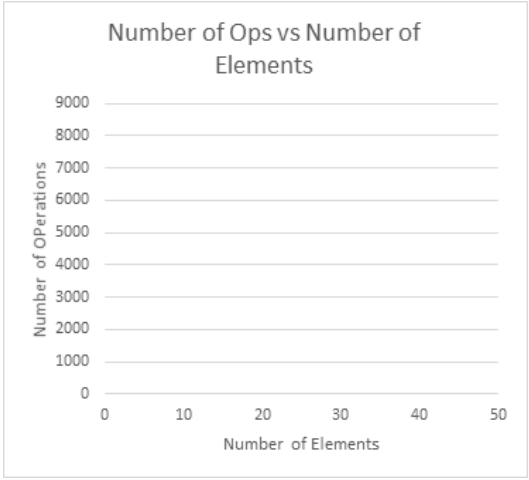


Question 2:

How many operations are performed in the possible_products function if the list has:

a. 10 elements?
b. 20 elements?
c. 30 elements?
d. 40 elements?
e. 100 elements?
f. 100,000 elements?

Plot the first four of these results on the chart to the right. Ponder the bigger one.



Question 3:

a. Does $n = O(n^2)$?
b. Does $n^2 = O(n^3)$?
c. Why or why not?

Question 4:

Fill out the Big-θ runtimes in this table:

Function, f(n)	Big-O	Another Big-O	Big-Ω	Big-θ
$an+b$	$O(n)$	$O(n^{100})$	$\Omega(n)$	
an^2+bn+c	$O(n^3)$	$O(n^2)$	$\Omega(n)$	
a	$O(n)$	$O(2^n)$	$\Omega(1)$	
3^n+an^{40}	$O(3^n)$	$O(50^n)$	$\Omega(n)$	
$an+b\log(n)$	$O(n^2)$	$O(n\log(n))$	$\Omega(\log(n))$	

"aha!" / "oops" moments to share with the class: